

CANADA
DEPARTMENT OF MINES AND RESOURCES
HON. T. A. CRERAR, MINISTER; CHARLES CAMSELL, DEPUTY MINISTER
NATIONAL MUSEUM OF CANADA

BULLETIN No. 85

BIOLOGICAL SERIES No. 22

**THE LEPTURINI OF AMERICA NORTH
OF MEXICO**

PART II

BY

Ralph Hopping

Entomological Branch, Department of Agriculture, Ottawa



OTTAWA
J. O. PATENAUDE, I.S.O.
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1937

Price, 25 cents

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THE LEPTURINI OF AMERICA NORTH OF MEXICO

Part II

INTRODUCTION

This paper presents the results of a study of the genera not included in Part I, except *Acmaeops* LeC. and *Cortodera* Muls. (*Leptacmaeops* Casey). These two genera have proved the most difficult of all, partly due to the difficulty of exactly identifying the types and the tremendous variation in colour within the species.

It has, therefore, been deemed advisable to publish the synopsis of *Acmaeops* and *Cortodera* later, in a separate paper.

In the course of the work it has been found that large series, of wide geographical distribution, are necessary to accurately determine their specific relationship and in most cases, thanks to my entomological friends, the author had these large series to study.

There is little to add to the introduction of Part I¹ as a complete key of the genera of the *Lepturini* is given there, and acknowledgment made to those who have materially helped in this study. The author is, however, especially indebted to Mr. H. C. Fall and Mr. P. J. Darlington for comparison of specimens with the LeConte types at Cambridge. Some of these types are in very poor condition and it has been difficult to find specimens exactly checking with the types.

Thanks are also due to Messrs. W. W. Baker, F. P. Dean, and J. Wilcox, of Washington state, for material, and to Messrs. R. E. Wagner and F. T. Scott of California.

The very carefully prepared plates were drawn by my son George R. Hopping, to whose helpful suggestions I am much indebted.

Genus, PYROTRICHUS LeC.

1862, Proc. Acad. Nat. Sci., Phila., p. 41

Genotype, PYROTRICHUS VITTICOLLIS LeC.

A stout species allied to *Leptalia* and *Encyclops*, but with the second segment of the hind tarsus not longer than the third. The elytra are black, with the prothorax with dense vestiture in longitudinal bands or stripes. Only one species known.

Pyrotrichus vitticollis LeC., 1862, Proc. Acad. Nat. Sci., Phila., p. 41.

(Plate I)

cribripennis Csy., 1913, Mem. on the Coleop., vol. IV, p. 198.

Length 12 to 14 mm. *P. cribripennis* Csy. is only a large female of *P. vitticollis* LeC. The type was examined. The large size and wholly black colour, except the vestiture of the pronotum and head, which is rufous, easily distinguish this species.

¹ "The Lepturini of America North of Mexico"; Nat. Mus., Canada, Bull. 52.

Fifteen specimens have been examined from California and British Columbia. The species probably occurs also in Washington and Oregon, although we have no records from those states.

Type locality: "California (Mr. Ulke)."

Genus, LEPTALIA LeC.

Leptalia LeC., 1873, Smith's Misc. Coll., No. 264, p. 204

Genotype (ANOPLADERA) MACILENTA Mann.

Leptalia frankenhaeuseri Mann., 1853, Bull. Moscou, vol. XXVI, p. 252.
(Plate I)

macilenta Mann., Bull. Moscou, vol. XXVI, p. 253.

fuscicollis LeC., 1857, Rept. Ex. Surv. Miss., vol. XII, pt. 3, p. 65.

Length 8 to 11 mm. This genus is very close to *Encyclops*. The front appears to be a little longer in proportion to the width than in *Encyclops*, and it is not quite so slender. It is very variable in colour and may be entirely black, vittate, or with pale elytra sometimes with nebulous black areas. All the colour variations, however, belong to the same species and do not warrant varietal names.

L. frankenhaeuseri has page priority. Several other varieties could be made on these colour variations.

Sixteen specimens have been examined from California, Oregon, and British Columbia.

Type locality: "Kenai" (Alaska).

Genus, ENCYCLOPS Newm.

1838, The Ent. Mag., London, vol. V, p. 392

Genotype, ENCYCLOPS PALLIPES Newm.

KEY TO THE SPECIES

- A Elytra without distinct vestiture, punctation sharply defined. (1) *coerulea* Say.
AA Elytra with distinct vestiture, punctation not sharply defined. (2) *californicus* Van D.

- (1) *Encyclops coerulea* Say, 1827, p. 280; Say's Ent., p. 336.
(Plate I)

pallipes Newm., 1838, Ent. Mag., vol. V, p. 392.

Length 7 to 9 mm. This species agrees with Dr. Van Dyke's description of *californicus* except in the characters given in the key. The sculpturing of the pronotum in *coerulea* is very variable, and the median line is sometimes slightly sulcate, sometimes slightly convex. Described under the name *Leptura coerulea* Say.

Twenty-five specimens examined from Ontario, Connecticut, New York, Ohio, Pennsylvania. In the literature, Illinois is also given.

Type locality not stated.

(2) *Encyclops californicus* Van D., 1920, Bull. Br. Ent. Soc., vol. XV, p. 45.

We have not seen the type, which is unique.

Type locality: "Lagunitas, Calif."

Genus, *TOXOTUS* Dej.

1921, Dej. Cat. Coleop., p. 112

Stenocorus Csy., 1913, Mem. on the Coleop., vol. IV, p. 205

Westwood designated the genotype in 1840 as *Toxotus (Cerambyx) meridianus* L. The genus *Stenocorus* Geoff. is congeneric with *Rhagium* Fabr.

Owing to a confusion of interpretations of the species, mostly based on descriptions without examination of the types, numerous new names have been proposed and described. Both the LeConte and Casey types have been examined, and specimens carefully compared with the types are now before me.

The antennæ in this group are very variable. Some females, in certain species, have the antennæ as long as some males. Individuals may also have stout or comparatively slender antennæ which are evidently the same species, and in series taken at the same place and the same date, but this is generally due to the size of the individuals. Antennæ "slender stout" also vary with the sex. Individuals of the same sex and species may vary in the length of the antennæ as in some species of the genus *Anoplodera*, but the proportionate length is approximately the same.

Colour is another very variable character, as black forms are quite common in several species with normally testaceous or rufous elytra.

In fact very few of the characters can be relied upon, but with the few fairly constant characters and large series, supplemented by field notes, it has been possible to separate the species with some fair degree of accuracy. The apices of the elytra, within certain limits, seem to afford a good character for group separation, especially where the colour and form resemble *T. vestitus* Hald. The vestiture, however, is unreliable and can only be used to a limited extent on account of the ease with which it may be rubbed off. In one species the relative lengths of the third and fourth segments of the antennæ may be used, but where the third is much longer than the fourth they cannot be reduced to exact measurements to distinguish species as there is considerable variation between the sexes and individuals.

Casey did not have in his collection (nor did he recognize) *croceus*, *nubifer*, *nigripes*, *flavolineatus*, *virgatus*, *vestitus*, *ater*, or *obtusus*.

The width between the front coxæ has been used to separate groups in this genus, but is unreliable for this purpose. At least two species, *flavolineatus* and *schaumi* have the front coxæ narrowly separated in the males and widely separated in the females.

Of the nineteen species and subspecies described by Casey only five are recognized here as distinct. Casey had very inadequate material to work with, as is shown by the following list of the specimens in his collection.

<i>schaumi</i> 1	<i>truncatulus</i> 2
<i>marginellus</i> 1	<i>apiciventrif</i> 2
<i>lateralis</i> 1	<i>rufipennis</i> 3
<i>morio</i> 3	<i>flaccidus</i> 1
<i>plagiatus</i> 1	<i>aureatus</i> 5
<i>vittiger</i> (<i>trivittatus</i> of Csy.) 10	<i>gilvicornis</i> 1
<i>vittiger</i> 3	<i>sericatus</i> 1
<i>tenellus</i> 3	<i>subpinguis</i> 2
<i>pacificus</i> 2	<i>uteanus</i> 1
<i>hesperus</i> 1	<i>oregonensis</i> 1
<i>parviceps</i> 2	
<i>brevicollis</i> 2	
<i>cylindricollis</i> 1	

KEY TO THE SPECIES

- A Apices of the elytra obliquely or transversely truncate.
 - B Third antennal segment nearly the same length as the fourth; apices of elytra emarginate, truncate, and bidentate. (1) *cylindricollis* Say.
 - BB Third antennal segment much longer than the fourth.
 - C Elytra vittate.
 - D Prothorax with base strongly bisinuate, a robust species, strongly cuneiform in shape, shining, with apices of elytra only feebly truncate. (2) *flavolineatus* LeC.
 - DD Prothorax with base feebly or not at all bisinuate, apices of elytra obliquely truncate.
 - E Elytral vittæ black, testaceous with the median black vittæ covering the humeri; lateral vittæ flavous or black.
 - F Prothorax wide with rather coarse punctures, vestiture long and ashy; body moderately stout, lateral vittæ flavous. Eastern species. (3) *vittiger* Rand.
 - FF Prothorax narrow, very finely punctured, vestiture comparatively short and reddish golden, shining; lateral vittæ black; a slender species. Pacific coast species. (4) *pacificus* Csy.
 - EE Elytral vittæ black, testaceous and rufous, median narrow black vittæ not covering the humeri, lateral broad vittæ rufous. (5) *trivittatus* Say.
 - CC Elytra not vittate.
 - D Pronotum with prominent lateral tubercles and very deep transverse basal and median impressions; elytra black; a large species. (6) *schaumi* LeC.
 - DD Pronotum with comparatively feeble lateral tubercles and comparatively shallow basal and median impressions; smaller species.
 - E Eyes very prominent, elytra without a suggestion of costæ, antennæ very slender. Eastern species. (7) *cinnamopterus* Rand.
 - EE Eyes not prominent; elytra subcostate. Western species.
 - F Antennæ comparatively slender; pronotum with median impression not well defined, with basal margin feebly bisinuate; form nearly parallel. (8) *lateralis* Csy.
 - FF Antennæ stouter, pronotum with median impression well defined, and basal margin rather strongly bisinuate; form cuneate. (9) *vestitus* Hald.

- AA Apices of elytra more or less narrowly rounded or sub-truncate.
 B Elytra of males and sometimes females vittate; females generally with unicolourous elytra and annulated antennæ. (10) *obtusum* LeC.
 BB Elytra with both sexes unicolourous.
 C Prothorax and elytra with long, dense, golden vestiture; antennæ and legs rufous. (11) *aureatum* Casey.
 CC Prothorax and elytra with moderately dense, pale vestiture; antennæ and legs black. (12) *oregonensis* Casey.

- (1) *Toxotus cylindricollis* Say, 1823, Jour. Acad. Nat. Sci., Phila., vol. III, p. 4.

(Plate II)

dentipennis Hald., 1847, Trans. Am. Phil. Soc., vol. X, p. 58.
dives Newm., 1841, The Entomologist, London, p. 68.
atratus Hald., 1847, Trans. Am. Phil. Soc., vol. X, p. 58.

Length 13 to 22 mm. This species is of very cuneiform shape and can readily be distinguished by the third and fourth antennal segments being nearly equal in length.

Although usually rufous approaching brown in colour black specimens are not uncommon. Black specimens sometimes have the femora and distal segments of the antennæ red.

Sixteen specimens are before us, from Indiana, Pennsylvania, Illinois, Missouri, and Michigan. In literature, Georgia, New York, Alabama, and Mississippi are given.

Type locality: "United States."

- (2) *Toxotus flavolineatus* LeC., 1854, Proc. Acad. Nat. Sci., Phila., vol. VII, p. 18.

(Plate II)

Length 18 to 22 mm. This is one of the largest species, coloured much as in *vittiger* Rand., but is easily recognized by its size, elytra very broad at the base, narrowing rapidly toward the apex, and its very shining appearance. Only one male has been seen. The males especially seem to be exceedingly rare in collections.

Three specimens are before me, all from British Columbia and Washington. Leng cites "Cal.," but it is doubtful if this species has been found in California.

Type locality: "Vancouver to Yokolt Plain."

- (3) *Toxotus vittiger* Rand., 1838, Boston Jour. Nat. Hist., vol. II, p. 29.

(Plate II)

nigripes Hald., 1847, Trans. Am. Phil. Soc., vol. X, p. 58.

Length 12 to 20 mm. Randall's *vittiger* was described under the name *Leptura vittigera*. LeConte seems to have been undecided as to whether *trivittatus* Say and *vittiger* Randall were the same species, for he has a label on his first specimen that reads "*T. vittiger* (Rand) LeC." "*? trivittatus* Say." Horn decided they were the same but he

could hardly have checked Say's description very carefully. Finally the doubt in LeConte's mind probably led him to describe Say's species under the name *virgatus*.

This species is quite constant in its colour, though the width of the vittæ sometimes varies, but in all the specimens we have seen the legs have always been black with black antennæ. One exception has been noted, a female from Minnesota, where the lateral black vitta only extends from the apices half-way to the humerus. Fifty specimens are before me, from Ontario, Quebec, Michigan, Illinois, Minnesota, Indiana, Pennsylvania, and New York. Leng's localities under *trivittatus* probably apply to the above species.

Type locality: "Mt. Bigelow, Me."

- (4) *Toxotus pacificus* Csy., 1913, Mem. on the Coleop., vol. IV, p. 209.
(Plate I)

hesperus Csy., 1913, Mem. on the Coleop., vol. IV, p. 210.

parviceps Csy., 1913, Mem. on the Coleop., vol. IV, p. 210.

tenellus Csy., 1913, Mem. on the Coleop., vol. IV, p. 211.

Length 10 to 14 mm. All of Casey's specimens are from Lake county, California. One other specimen has been seen from Mendocino county, California. The very narrow, elongate pronotum and the slenderness of this species are apparently distinguishing characters. Four specimens have the vittæ absent, the elytra being entirely rufous.

Thirteen specimens have been seen, all from Berkeley, California, and the coast counties just north of San Francisco, California.

Type locality: Lake county, California.

- (5) *Toxotus trivittatus* Say, 1823, Jour. Acad. Nat. Sci., Phila., vol. III, p. 422.

(Plate II)

virgatus LeC., 1874, Trans. Am. Ent. Soc., vol. V, p. 67.

Length 14 to 15 mm. This beautiful species can be easily recognized by the broad, rufous, lateral vittæ, the narrow median ones, the rufous antennæ, the legs yellow or rufous. The suture is black, separating broad, flavous vittæ. If Say's description of *trivittatus* is compared with LeConte's of *virgatus* it will be seen that they are evidently describing the same species. LeConte's two specimens of *virgatus* are without localities and can hardly be said to come from "Oregon, Vancouver and British Columbia." In the large collection of *Toxotus* before me from Oregon and British Columbia this species does not occur. The four specimens before me are all from Manitoba. It should also be remembered that Say's type locality of "Mississippi" in 1823 did not mean the state, as we now know it, but probably referred to any place in Mississippi valley.

Seven specimens were examined, four of them from Manitoba and three from Missouri.

Type locality: "Mississippi."

- (6) *Toxotus schaumi* LeC., 1850, Jour. Acad. Nat. Sci., Phila. (2), vol. I, p. 320.

(Plate II)

croceus Leng, 1890, Ent. Am., vol. VI, p. 68.

Length 17 to 25 mm. The variation in the colour of the prothorax, piceus to rufous, is rather common in the *Lepturini* and does not warrant specific or subspecific distinction.

The legs are sometimes rufous, but generally bicoloured. The species is easily distinguished by its large size and feebly rugose black elytra.

Twenty-six specimens have been examined from Ontario, Quebec, Illinois, Minnesota, Ohio, and Indiana. In literature, Vermont and Canada are given.

Type locality: "Ohio."

- (7) *Toxotus cinnamopterus* Rand., 1838, Boston Jour. Nat. Hist., vol. II, p. 45.

(Plate II)

Length 10 to 13 mm. This was described by Randall under the name *Leptura cinnamoptera*.

The species may be recognized by its small size, very slender antennæ, and cinnamon-brown colour, sometimes almost rufous.

Twelve specimens before us are from Illinois, Kansas, Missouri, Oklahoma, and Massachusetts. In literature, North Carolina and Pennsylvania are given.

Type locality: Cambridge, Mass.

- (8) *Toxotus lateralis* Csy., 1891, Ann. N.Y. Acad. Sci., vol. VI, p. 37.

(Plate II)

uteanus Csy., 1924, Mem. on the Coleop., vol. XI, p. 273.

marginellus Csy., 1924, Mem. on the Coleop., vol. XI, p. 274.

Length 9 to 16 mm. The elytra of this species may be black, testaceous, rufous, or black with humeral rufous band extending sometimes half-way to the apices. The form is more parallel than *vestitus*, the antennæ more slender, and the pronotal sculpture much feebler. The ventral surface is also not so densely hirsute as in *vestitus*. In California it is found on *Ceanothus* in the foothills, whereas *vestitus* is more commonly found above 6,000 feet in the flowers of the genus *Lupinus*. Casey's *uteanus* from Utah and *marginellus* from California are apparently only colour forms of *lateralis*.

Specimens compared with the types cannot be distinguished from this species.

Thirty-one specimens are before me, all from central California.

Type locality: California.

- (9) *Toxotus vestitus* Hald., 1847, Trans. Am. Phil. Soc. (2), vol. X, p. 59.
(Plate II)

nubifer LeC., 1859, Proc. Acad. Nat. Sci., Phila., p. 80.
ater Leng, 1890, Ent. Am., vol. VI, p. 68.
truncatulus Csy., 1913, Mem. on the Coleop., vol. IV, p. 211.
apiciventrīs Csy., 1913, Mem. on the Coleop., vol. IV, p. 211.
flaccidus Csy., 1913, Mem. on the Coleop., vol. IV, p. 21.
rufipennis Csy., 1913, Mem. on the Coleop., vol. IV, p. 212.
plagiatus Csy., 1924, Mem. on the Coleop., vol. XI, p. 273.
morio Csy., 1924, Mem. on the Coleop., vol. XI, p. 274.

Length 10 to 17 mm. This is apparently one of the most variable of all our species, both as to colour and size. Although normal specimens have rather dense elytral transverse vestiture, this vestiture is easily rubbed off, and with the many colour forms has no doubt led to the rather numerous synonyms. Haldeman's description consists of only one line and might fit several species, but the author has accepted what LeConte and Horn considered as typical, that is specimens with rufous elytra, antennæ, and legs. Numerous other forms rufous to black are found, but cannot at present be separated from *vestitus*. Casey's *plagiatus* is typical *nubifer* LeC. with the sutural area dusky. We have seen three specimens of this colour variety, the type of *nubifer* from Fort Tejon, the type of *plagiatus* from Cisco, Placer county, California, and one in the writer's collection from Fresno county, California. The black form is entirely black or black with rufous or cinereous elytra.

Host: *Toxotus vestitus* Hald. has been bred from *Pinus ponderosa* Laws.

Eighty-seven specimens are before me, from British Columbia, Washington, Oregon, and California.

Type locality: Oregon.

- (10) *Toxotus obtusus* LeC., 1873, S.M. Coll., vol. XI, No. 264, p. 206.
(Plate I)

brevicollis Csy., 1913, Mem. on the Coleop., vol. IV, p. 214.

Length 10 to 15 mm. The fact of the males being vittate and the females generally with the elytra unicolorous not only led Casey to redescribe it but has led to much confusion in collections. We have before us a few males not vittate and occasional females vittate. The evenly rounded apices will always distinguish it from *vittiger* Rand or *trivittatus* Say.

This species (the male) often goes under the name *T. virgatus* in collections. The male is not represented in the LeConte collection.

Seventy-eight specimens are before me, from British Columbia, Washington, Alberta, and Wyoming.

Type locality of *brevicollis*: "Washington State."

Type locality: Yellowstone basin.

Six specimens entirely black or with the elytra dark brown are referred to this species, five males and one female—three from Washington, one from Waterton lakes, Alberta, and two from British Columbia. They cannot be separated by any known character. These melanic forms are, however, quite common in many species of the *Lepturini*.

(11) *Toxotus aureatus* Csy., 1913, Mem. on the Coleop., vol. IV, p. 213.

(Plate I)

gilvicornis ♂ Csy., 1913, Mem. on the Coleop., vol. IV, p. 213.

sericatus ♀ Csy., 1913, Mem. on the Coleop., vol. IV, p. 213.

subpinguis Csy., 1913, Mem. on the Coleop., vol. IV, p. 213.

Length 10 to 15 mm. This species was collected by the author in Fresno county, California, on Mariposa lilies (*Calochortus*); at the same time *T. vestitus* was collected on wild lilac (*Ceanothus*) in the same field.

Its short form, dense, long, golden vestiture, and rounded apices easily distinguish it from *vestitus*.

sericatus Csy. is a slightly stouter female.

gilvicornis Csy. is the male of *aureatus*.

subpinguis Csy. is apparently based on stout females from Utah.

Fifty-two specimens are before me, from California.

(12) *Toxotus oregonensis* Csy., 1913, Mem. on the Coleop., vol. IV, p. 214.

(Plate I)

Length 10 to 15 mm. This species is of average smaller size than *vestitus*, with the elytral apices evenly rounded to the suture, not broadly obliquely truncate as in *vestitus*. The black legs and antennæ seem to be quite constant, but the terminal abdominal segments (3) dark rufous is variable and only in the female. Males have the entire abdomen rufous.

The rounded apices and shorter form separate this easily from *vestitus*.

T. oregonensis is apparently more common on the coast than in the interior, especially at Corvallis, Oregon, and Victoria on Vancouver island.

Sixty-eight specimens are before me, all from British Columbia, Alberta, Oregon, and California.

Type locality: "Oregon (Clackamas Co.)."

Genus, *STENOCORUS* Geoff.

1762, Hist. des In., p. 221

Rhagium Fabr., 1775, Syst. Ent., p. 182

Genotype (*CERAMBYX*) *INQUISITOR* L.

Stenocorus inquisitor L., 1758, Syst. Ent. (ed. 10), p. 393.

(Plate IV)

- indigator* Fab., 1787, Mant. Insect., p. 145.
lineatum Oliv., 1795, Ent., vol. III, Paris, p. 13.
investigator Mann., 1852, Bull. Moscou, vol. XXV, p. 367.
californicum Csy., 1913, Mem. on the Coleop., p. 195.
crassipes Csy., 1913, Mem. on the Coleop., p. 195.
parvicornis Csy., 1913, Mem. on the Coleop., p. 195.
boreale Csy., 1913, Mem. on the Coleop., p. 195.
cariniventre Csy., 1913, Mem. on the Coleop., p. 196.
thoracicum Csy., 1913, Mem. on the Coleop., p. 196.
montanum Csy., 1913, Mem. on the Coleop., p. 197.

Length 11 to 16 mm. In addition to the large series examined from the mountainous regions of the United States and Canada, a large series from Europe has also been studied. Dr. Harris in 1841 in his first report on the Insects Injurious to Vegetation states that "The grey portions on this beetle are occasioned by very short hairs forming a close kind of nap, which is easily rubbed off." This seems to have led to the extensive synonymy. We have not been able to separate this large series before us nor have we been able to separate the North American species from that of Europe. The irregular mottled appearance, short form, and acute lateral prothoracic spines make this species easy to distinguish. Many of the forms here relegated to the synonymy may be found in the same series taken in the same locality. It is commonly found breeding under the bark of various coniferous trees, and in British Columbia has been bred from several species.

Host trees: *Picea engelmanni*, *Abies lasiocarpa*, *Pinus ponderosa*, *Pinus monticola*, *Pinus contorta*, *Pseudotsuga taxifolia*, *Abies magnifica*, *Abies concolor*, *Larix occidentalis*, *Tsuga heterophylla*, and probably other conifers.

Two hundred and sixty-eight specimens are before me, from British Columbia, Alberta, Manitoba, Quebec, Ontario, Nova Scotia, Oregon, California, Idaho, Arizona, Colorado, New York, and Europe. In literature Massachusetts, Connecticut, New Mexico, Alaska, Siberia, and Japan are mentioned.

Type locality: "Europa."

Genus, CENTRODERA LeC.

1850, Jour. Acad. Nat. Sci. Phila., vol. I (2), p. 325

Parapachyta Csy., 1913, Mem. on the Coleop., vol. IV, p. 216

Genotype (RHAGIUM) DECOLORATA Harr.

Species of this genus have been quite rare in collections. Casey erected a new genus for *Pachyta spurca* LeC. Although evidently not a *Pachyta* in form, it also differs greatly from *Pachyta* in the coarsely granulated eyes, and has the parallel sides to the elytra as in *Centrodera*, from which it does not differ in generic characters and to which genus it most evidently belongs. Of *spurca* and *nevadica* we have a good series, but *decolorata*, although to be found in most large collections, never seems to be abundant.

The other species are scarce or else represented by uniques.

The species all have rather elongated forms with the prothorax rather strongly tuberculate on the lateral margins and strongly constricted apically and basally. Punctures of the elytra in all species we have examined are distinctly coarser at the base than toward the apex.

Casey's *C. tenera* is here recognized, though it is doubtfully distinct from *nevadica* LeC. It is probably a small male of the latter species.

KEY TO THE SPECIES

- A Prothorax with distinctly impressed, median, longitudinal sulcation.
 - B Apex of elytra truncate or emarginate-truncate; elytra testaceous with a small median lateral black spot. (1) *spurca* LeC.
 - BB Apex of elytra evenly rounded to the suture.
 - C Elytra unicolorous, large and rather robust species.
 - D Vestiture of elytra short and inconspicuous, punctation of basal portion rather coarse and sparse. (2) *decolorata* Harris.
 - DD Vestiture of elytra conspicuous and moderately long, punctation of basal portion comparatively fine.
 - E Pronotum punctate and scabrous. (3) *nevadica* LeC.
 - EE Pronotum impunctate, smooth and very feebly scabrous laterally. (4) *blaisdelli* Van D.
 - CC Elytra more or less maculate, a very slender species. (5) *picta* Hald.
 - AA Prothorax without a continuous, median, distinctly impressed longitudinal impression.
 - B Vestiture dense dorsally.
 - C Vestiture dense and pilose, disk of prothorax not impressed at the middle. (6) *pilosa* Van D.
 - CC Vestiture of apical half of elytra coarse and reddish between the carina, prothorax not distinctly and continuously sulcate. (7) *sublineata* LeC.
 - BB Vestiture sparse, disk of prothorax barely impressed. (8) *tenera* Csy.

- (1) *Centrodera spurca* LeC., 1857, Rept. of Exp. and Surv. Miss. to Pac., vol. XII, pt. 3, p. 63.

(Plate III)

cervinus Walk., 1866, Lord's Nat. Vanc., vol. II, p. 332.

Length 18 to 26 mm. *C. spurca* LeC., a stout species, uniformly testaceous in colour, except a small black elytral spot medianly placed on the lateral margin. Shows in our opinion no generic differences from *Centrodera*. This small black dot seems to be always present.

Fifty-nine specimens are before me, from British Columbia, Idaho, and California, and it probably occurs in Oregon and Washington. Nevada is mentioned in literature.

Type locality: "Steilacoom" probably Washington.

- (2) *Centrodera decolorata* Harris, 1841, Rept. Ins. Mass. Inj. Veg., p. 93.

(Plate III)

rudibus Hald., 1847, Trans. Am. Phil. Soc., vol. X, p. 58
(*rubidus* Dej. Cat.).

lacustris Csy., 1918, Mem. on the Coleop., vol. VIII, p. 416.

Length 23 to 25 mm. This species was described under the name of (*Rhagium*) *decoloratum* in 1841, but the specific name was first proposed

by Dr. Harris in the Massachusetts report of 1838, page 96. The insect is long and narrow and of a fairly uniform reddish brown colour. Casey's *lacustris* cannot be separated from *decolorata* Harr. He has four specimens under the former and two under the latter name.

Twenty-one specimens are before me, from Ontario, Quebec, New Hampshire, New York, and northern Illinois. In literature, Michigan, Massachusetts, and Indiana are given.

Type locality: "Dublin, N.H."

- (3) *Centrodera nevadica* LeC., 1873, S.M. Coll., No. 264, vol. XI, p. 205.

(Plate III)

oculata Csy., 1913, Mem. on the Coleop., vol. IV, p. 202.

Length 15 to 21 mm. *C. oculata* Csy. is the male of this species. Type examined. *C. blaisdelli* Van D. from the description so exactly fits the males of *C. nevadica* LeC., before me, that it was only by a comparison with the type that it was found to be a distinct species. The males are much more slender than the females. Although many are reddish brown, occasional specimens are dark brown. The prothorax of the male is much more widely sulcate than the female, with the sulcation bounded laterally with tubercles converging toward the apex. These tubercles are sometimes nearly obsolete.

Host: *Pinus ponderosa* Laws.

Thirty-one specimens are before me, all from California.

Type locality: "Virginia City, Nevada."

- (4) *Centrodera blaisdelli* Van D., 1927, Pan. Pac. Ent., vol. III, No. 3, p. 102.

Length 16 mm. From Van Dyke's description there seemed to be nothing to distinguish this species from small and light-coloured specimens of *nevadica* LeC. Dr. F. C. Blaisdell very kindly compared one of these light-coloured specimens with the unique type and finds that the chief difference is in the pronotum. That of *nevadica* is distinctly punctate and scabrous whereas *blaisdelli* has the disk smooth, impunctate, and only slightly scabrous laterally. It is also paler and a little more slender than small specimens of *nevadica*.

Type locality: Cuyamaca mountains, California.

- (5) *Centrodera picta* Hald., 1847, Trans. Am. Phil. Soc. (2), vol. X, p. 58.

(Plate III)

Length 9 to 12 mm. A beautiful, very slender species with elytra variously maculate with brown generally forming testaceous converging vittæ on the disk with two marginal, short, white markings. The prothorax is much longer than wide with prominent, lateral tubercles placed behind the middle.

Twenty specimens have been examined, from Georgia, Pennsylvania, and Connecticut. In literature, South Carolina is mentioned as well as New York.

Type locality: "Pennsylvania?"

Haldeman refers to Melsheimer Catalogue Knoch., but the Mels. Cat. says "*pictus* Hald."

- (6) *Centrodera pilosa* Van D., 1927, Pan. Pac. Ent., vol. 3, No. 3, p. 101.

Length 16 mm. We have been unable to examine the type of this species. The median line of the prothorax is described as not at all impressed and the elytra pilose, which should distinguish it from all other species. The type is in the Van Dyke collection and the paratype in the Blaisdell collection. Both collections are in the Academy of Natural Sciences, in Golden Gate park, San Francisco, California.

Type locality: "Los Angeles Co., Calif."

- (7) *Centrodera sublineata* LeC., 1862, Proc. Acad. Nat. Sci., Phila., p. 40.

The only specimens known to me are the type and paratype from Philadelphia and North Carolina. It is a comparatively slender species, the type a male and the paratype a female. The antennæ are longer than the body in the male and about as long as the body in the female. The elytra are subcarinate, sparsely punctured on the carina, densely otherwise, with the apical half of the elytra with coarse reddish vestiture between the carinæ. The pronotum is densely punctured. The types were examined.

- (8) *Centrodera tenera* Csy., 1913, Mem. on the Coleop., vol. IV, p. 203.

Length 10.5 mm. An examination was made of the type of this species. It looks like a small male of *nevadica* LeC. However, the elytra are narrower, more finely punctured, and slightly rounder at the apices. The median, longitudinal line of the prothorax is hardly impressed and the lateral tubercles are almost non-existent, more evident on one side than the other.

Only the type seen.

Type locality: "San Diego, Calif."

Genus, XYLOSTEUS Friv.

1838, Magyar Tred. Tars, Evkön III

Genotype, XYLOSTEUS SPINOLAE Friv.

- Xylosteus ornatus* LeC., 1873, S. M. Coll., vol. XI, No. 264, p. 205.

(Plate III)

Length 14 mm. This is a very rare species in collections. The type is in poor condition. The elytra are long and parallel and the pronotum is much longer than wide with small, very sharp, lateral spines. Both pronotum and elytra are coarsely punctured. The colour is black with elytral maculation consisting of sub-basal and sub-apical spots, white, wide at the lateral margins, and narrowing to a point toward the suture, the anterior ones curved apically and the posterior ones curving basally. Through the kindness of Dr. E. C. Van Dyke we were able to examine a second specimen, a male from Plumas county, California. The type looks

as though it had been in alcohol a long time, as the spots are rufous. The comparatively small eyes and type of maculation will not allow it to be placed in the genus *Centrodera*, although *C. picta* somewhat approaches this species in maculation.

Type locality: "Oregon."

Genus, ANTHOPHILAX LeC.

1850, Agassiz, Lake Superior, Boston, IV, p. 236

Genotype (LEPTURA) VIRIDIS LeC. (Thomson 1857)

Thomson made *viridis* LeC. the genotype, but as *viridis* is a synonym of *malachiticus* Hald. the latter name will probably have to be used.

This genus was separated by LeConte in 1850. The form is parallel and the third segment of the hind tarsi is cleft to the base. Specimens of all the species have been examined except *quadrinaculatus* C. and K.

The Junk Catalogue gives the date of *cyanea* Hald. as 1845, but as Haldeman in a supplement to his "Longicornia of the U.S." says that the greater portion of his paper was prepared in 1844, and at the same time says his *cyanea* is only a variety of *malachiticus* Hald., it would seem that he recognized the latter name as the one first described and it is here accepted.

KEY TO THE SPECIES

- A Antennæ with third segment much longer than the fourth.
 - B Apices of the elytra rounded, metallic species.
 - C Prothorax rugose with two spine-like protuberances on the disk; elytra bright green, red laterally. (1) *hoffmani* Beaut.
 - CC Prothorax not rugose and wholly devoid of spines; elytra green, blue, or brassy green. (2) *malachiticus* Hald.
 - BB Apices of elytra truncate, elytra brown with greyish, pubescent maculation, punctures moderate and sparse. (3) *attenuatus* Hald.
 - AA Antennæ with third and fourth segments nearly equal.
 - B Apices of elytra obliquely truncate, elytra ochraceous with four piceus spots. (4) *quadrinaculatus* C. and K.
 - BB Apices of elytra rounded.
 - C Base of elytra coarsely punctured, becoming gradually finer toward the apices.
 - D Prothorax with disk concave; base of elytra rugulose and strongly shining on basal half. (5) *mirificus* (♀) Bland.
 - DD Prothorax with disk convex; base of elytra not rugulose.
 - E Black; elytra sometimes with testaceous vittæ, especially in the male; antennæ stout in the female, slender in the male. (6) *tenebrosus* LeC.
 - EE Brown; elytra with pale vittæ on the disk and lateral margins. (7) *subvittatus* Csy.
 - CC Elytra finely, sparsely punctured, colour red with basal and apical piceus spots. (5) *mirificus* (♂) Bland.
- (1) *Anthophilax hoffmani* Beaut., 1903, Bull. Am. Mus. Nat. Hist., vol. XIX, p. 518.

Length 18 to 20 mm. This beautiful species is easily recognized by its size, the tubercles on the disk of the pronotum, and its colour. We have examined a specimen in the Casey collection. It was described from two males and four females. This very rare species was taken in the Black mountains of North Carolina on *Abies fraseri*.

Type locality: "Black Mts., N.C."

- (2) *Anthophilax malachiticus* Hald., 1845, Proc. Acad. Nat. Sci., Phila., p. 64.

(Plate IV)

cyanea Hald., 1847, Trans. Am. Phil. Soc. (2), vol. X, p. 151.

viridipennis Csy., 1918, Mem. on the Coleop., vol. VIII, p. 246.

viridis LeC., 1850, Agass. Lake Superior, Boston, vol. IV, p. 236.

Length 12 to 16 mm. In a series of sixteen specimens before me, I find two with black antennæ, one with bicoloured legs, and one with black legs, one with black legs and testaceous antennæ, both males and females with annulated antennæ, the colour of the elytra running from dark blue, light blue, vivid green, to brassy green, and the greatest diversity in punctation in individuals. We have, therefore, concluded they are one and the same species as originally indicated by Mr. Leng. Haldeman's name antedating LeConte's by five years, *viridis*, therefore, becomes a synonym. Two specimens in the writer's collection bear the label "Victoria, B.C.," which I feel sure is an error.

Sixteen specimens, from Ontario, Quebec, Nova Scotia, New York, and New Hampshire. In literature, Maine, Massachusetts, Pennsylvania, North Carolina, and Michigan are given.

Type locality: Somerset county, Pa.

(Type locality: *viridis* "Eagle Harbour, Lake Superior.")

- (3) *Anthophilax attenuatus* Hald., 1847, Trans. Am. Phil. Soc. (2), vol. X, p. 59.

(Plate IV)

Length 14 to 17 mm. Differs from all our known species by the finely mottled elytra. It has been beaten from pine foliage, but the host seems to be unknown.

Fourteen specimens are before me, from Minnesota, Ontario, Quebec, Michigan, New Hampshire, and New York. Other localities given in literature are New Brunswick, Maine, and Virginia.

Type locality: "Eagle Harbour, Lake Superior."

- (4) *Anthophilax quadrimaculatus* C. and K., 1922, Ent. News, vol. XXXIII, p. 147.

Length 16 mm. Only the type, said to be a female, is known. The description reads something like the male of *mirificus* Bland, except that the piceus spots are differently placed and the apices are obliquely truncate. The punctation seems to be much the same as in the female of *mirificus* Bland. The colour is given as ochraceous with four black spots, two on each elytra.

Have not seen the type.

Only type known—a female.

Type locality: Rock Bridge, Ohio.

- (5) *Anthophilax mirificus* Bland, 1865, Proc. Ent. Soc., Phila., vol. IV, p. 382.

(Plate IV)

venustus Bland (♂), 1865, Proc. Ent. Soc., Phila., vol. IV, p. 382.

costaricensis Bates, 1884, Bio. Cent. Am., vol. 5, p. 277.

Length 9 to 20 mm. This species is not only remarkable for the difference in colour between the sexes, red elytra with four black spots in the male and totally black in the female, but the remarkable difference in punctuation. The elytra of the males are very sparsely, finely punctured, that of the females coarse and dense. Also in the males the elytra are smooth, whereas the female is rugose. The name *mirificus* takes page precedence and has been erroneously quoted as the male, whereas Bland's *venustus* was described as the male.

Host: *Pinus ponderosa* Laws.

Thirty-three specimens have been examined, from British Columbia. Other localities mentioned in literature are Montana, Idaho, Utah, Colorado, California, and Central America.

Type locality: "Colorado Territory."

- (6) *Anthophilax tenebrosus* LeC., 1873, S.M. Coll., vol. XI, No. 264, p. 208.

(Plate IV)

nigrolineatus Van D., 1917, Jour. N.Y. Ent. Soc., vol. XXV, p. 36.

Length 11 to 16 mm. The two females before me have moderately stout antennæ. Males in the series of four in the Darlington collection have the antennæ slender, which is common in several other species in the genus.

Variation in elytral punctation is common in this genus, especially in the sexes, notably in *mirificus* Bland. The males, as in Dr. Van Dyke's type, are often vittate or partly so. Occurs at high altitudes.

Seven specimens have been examined, from Mount Hood, Oregon, and California.

Type locality: "Southeastern California."

- (7) *Anthophilax subvittatus* Csy., 1891, Ann. N.Y. Acad. Sci., vol. VI, p. 37.

Length 9.3 to 11 mm. The five specimens in the Casey collection are light brown with pale vittæ, suggesting that they are immature. They may be *tenebrosus* LeC., but average smaller than the few specimens seen of *tenebrosus*.

The locality given "Colorado?" is a mere supposition as are many of the new species erected by Col. Casey from material in the Levette collection. Nicolay¹ states that there is one in the Leng collection, also

¹ 1917, Jour. N.Y. Ent. Soc., vol. XXV, p. 43.

without locality. Except the colour, there do not seem to be any characters to separate it from *tenebrosus* LeC. and, therefore, this is used in the key.

Five specimens were examined, all in the Casey collection.

Type locality: "Colorado?"

Genus, *PACHYTA* Dej.

1821, DeJean, Faun. Ins. Lapp., vol. 1, p. 376

Genotype (*LEPTURA*) *OCTOMACULATA* Fab.

This genus in America is not only characterized by the finely granulated eyes but by its shape, with elytra wide at the base and rapidly narrowing to the apices.

KEY TO THE SPECIES

- A Pronotum with strong lateral tubercles; elytra flavous with apical marginal oblique band. (1) *armata* LeC.
- AA Pronotum with obtuse, rather feeble, lateral tubercles; elytra testaceous with brown maculation, brown or black. (2) *lamed* L.

(1) *Pachyta armata* LeC., 1873, S. M. Coll., vol. II, No. 264, p. 207.

(Plate III)

Length 14 to 18 mm. This species with its triangular form, bright yellow elytra, with black, narrow apical marginal bands is unmistakable. It seems to be very constant in colour.

Twenty-five specimens are before us, from British Columbia and Washington. The localities, Idaho and Oregon, are given in literature.

Type locality: "Oregon."

(2) *Pachyta lamed* L., 1858, Syst. Nat., ed. 10, Holmiae, vol. I, p. 391.

(Plate III)

liturata Kby., 1837, Fauna Bor. Am., pt. 4, p. 178.

nitens LeC., 1850, Jour. Acad. Nat. Sci., Phila. (2), vol. I, p. 235.

conflagrata Mots., 1860, Schrenks Reise, Col., p. 147.

Length 11 to 19 mm. Specimens of *Pachyta lamed* L., before me, and specimens from Europe in the United States National Museum, cannot be separated from what has been known as *liturata* Kby., here in America. The species varies much in colour from the typical form, with testaceous elytra with irregular brown or black maculation. The males both in North America and Europe often have the elytra brown, and in the high mountains of the United States and Canada individuals of both sexes often have the elytra black and shining. In a large series intermediates can be found.

One hundred and fifty specimens are before me, from California, British Columbia, Fort Norman, Mackenzie river, Northwest Territories, Alberta, Manitoba, Quebec, Rocky mountains, Colorado, Montana, Pennsylvania, and Europe.

Type locality: "Europa."

The type locality of *liturata* Kby. is given as "Lat. 54° and 65°."

Genus, *PIODES* LeC.

1850, Jour. Acad. Nat. Sci., Phila. (2), vol. I, p. 318

Genotype, *PIODES CORIACEA* LeC.

The eyes small, entire, with the antennæ placed some distance from the eyes, separate this genus from *Anthophilax* and *Pachyta*.

The antennal segments 5 to 10 are also different, being very short and subglobular.

Dr. LeConte's type was more or less crushed, the abdominal segments protruding beyond the elytra more than seems to be normal.

Piodes coriacea LeC., 1850, Jour. Acad. Nat. Sci., Phila. (2), vol. I, p. 318.

(Plate III)

Length 17 to 20 mm. Besides the type, nine specimens were examined in the Blanchard collection at Cambridge, Mass., two in the United States National collection, and one in the Dietrich collection from Wenatche, Wash. The Bowditch specimens were all from Ellensburg, Wash.

The male has much stouter antennæ than the female and is somewhat smaller. Four females and eight males have been examined, all from the state of Washington. All specimens seen are entirely black and except in the antennæ and size do not differ. Seems to be very local in distribution.

Type locality: "Oregon."

In 1850 any place in the present state of Washington might be construed as Oregon.

Genus, *EVODINUS* LeC.

Jour. Acad. Nat. Sci., Phila. (2) 1, 1850, p. 325

Genotype (*LEPTURA*) *MONTICOLA* Rand.

KEY TO THE SPECIES

- A Lateral tubercles of prothorax prominent; antennæ comparatively stout, eastern species. (1) *monticola* Rand.
- AA Lateral tubercles of prothorax obtuse, evenly rounded; antennæ slender, western species. (2) *vancouveri* Csy.

(1) *Evodinus monticola* Rand., 1838, Bost. Jour. Nat. Hist., vol. II, p. 27.

(Plate V)

carolinensis Csy., 1924, Mem. on the Coleop., vol. XI, p. 275.

Length 8 to 11 mm. This species, besides being eastern, is distinguished by its lighter appearance, fairly regular maculation, wide base to the elytra, and narrow apices. The antennæ and legs are generally rufous, but occasionally black.

Sixty-eight specimens have been examined from Ontario, Quebec, New Brunswick, Nova Scotia, New Hampshire, Maine, New York, Pennsylvania, and Wisconsin. In literature, lake Superior and North Carolina are cited.

Type locality: "North Carolina."

(2) *Evodinus vancouveri* Csy., 1913, Mem. on the Coleop., vol. IV, p. 216.

Plate V

Length 8 to 10 mm. The maculation of this species is sometimes similar to that of *monticola* Rand., except that the lateral basal spot touches the margin. The majority of specimens, however, have the black predominating, some specimens being almost entirely black. The prothorax is narrower and the elytra more parallel.

One hundred and thirty-six specimens have been examined, from Alaska, British Columbia, Washington, Oregon, and California.

Type locality: "Vancouver Island."

Genus, GAUROTES LeC.

1850, LeConte, Jour. Acad. Nat. Sci., Phila., vol. 1 (2), p. 324

Genotype (LEPTURA) CYANIPENNIS Say

This genus is very close to *Acmaeops*, but is easily recognized by the lack of elytral vestiture and by the species being brilliant green and shining.

KEY TO THE SPECIES

- A Pronotum suddenly constricted basally; elytra closely punctured; legs bi-coloured.
(1) *cressoni* Bland.
- AA Pronotum not suddenly constricted basally; elytra sparsely punctured; legs unicolorous.
- B Pronotum with apical, transverse constriction moderate; abdomen black.
(2) *cyanipennis* Say.
- BB Pronotum with apical, transverse constriction canaliculate; abdomen red.
(3) *abdominalis* Bland.

(1) *Gaurotus cressoni* Bland, 1864, Proc. Ent. Soc. Phila., vol. III, p. 69.

(Plate V)

lecontei Csy., 1913, Mem. on the Coleop., vol. IV, p. 219.

Length 13 to 15 mm. This beautiful species is generally captured on wild roses and is quite common in British Columbia when the roses are in bloom. Elsewhere it seems to be quite rare. The rather closely, coarsely punctured elytra and western habitat make it easily determined from the two eastern species. Col. Casey's *lecontei* is only a greenish specimen, common in our large series. In British Columbia it is commonly found on the wild rose.

Forty-four specimens are before me, from California and British Columbia. In literature, Oregon, Colorado, and Nevada are mentioned. Probably occurs also in Washington.

Type locality: Rocky mountains, Colorado.

- (2) *Gaurotes cyanipennis* Say, 1823, Jour. Acad. N.S., Phila., vol. III, p. 423.

(Plate V)

servillei Serv., 1835, Ann. Soc. Ent. Fr., vol. IV, p. 214.
ione Newm., 1840, The Entomologist, London, vol. I, p. 423.
laportei Guer., 1844, Icon. regne anim. Ins., p. 253.
leonardii Hald., 1847, Trans. Am. Phil. Soc., vol. X, p. 60.

Length 10 to 12 mm. This species, confined to the eastern part of the continent, is easily recognized by the shallow apical transverse constriction of the prothorax and the black abdominal segments.

Seventy-eight specimens are before me, from Ontario, New Brunswick, and Pennsylvania. Other localities given in literature are eastern United States and Indiana.

Type locality: "United States."

- (3) *Gaurotes abdominalis* Bland, 1862, Proc. Ent. Soc., Phila., vol. I, p. 270.

(Plate V)

Length 10 to 11 mm. Although of practically the same general colour as the preceding species, the deeply canaliculate apex of the prothorax and the red abdominal segments, which seem to be constant, make it easily recognizable.

Thirty-one specimens are before me, from Pennsylvania and Ontario. Other localities mentioned in literature are New York and Virginia.

Type locality: "Virginia."

Genus, OPHISTOMIS Thom.

1857, Archives Entomologiques, Paris, p. 319

Cyphonotida Csy., 1913, Mem. on the Coleop., vol. IV, p. 260

Genotype, OPHISTOMIS FLAVOCINCTUS Thom., monotypic

This species was designated as genotype by Thomson in 1866. Thomson in his original description describes the segments of the antennæ in detail, but does not mention any poriferous areas. We have examined a specimen of *O. flavocinctus* in the British Museum, kindly loaned us through Mr. Blair. The prothorax is somewhat longer than that of *O. ventralis* Horn, but the front of the head is prolonged and the species, in my opinion, are congeneric.

The original description of Thomson (1857) refers to the Dej. Cat. 1837 where seven species are listed, but Thomson in 1860 adds a footnote to his redescription of *O. flavocinctus* in which he says that none of Dejean's listed species have been described nor can we find that Dejean ever described them in any of his published works. Of the Central American and South American *Ophistomis* we have examined, besides the genotype, fourteen other species, several of them cotypes, kindly given or loaned us by Mr. Blair of the British Museum.

Of these fourteen species at least one (some were minus antennæ) belongs to the genus *Strangalina*, viz. *O. ochroptera* Bates from the

Amazon, and at least six to a new genus, antennæ with poriferous areas and head much longer than wide. *Ophistomis laevicollis* is quite closely related to *O. succincta* Redt.

Col. Casey had before him a specimen of *Ophistomis* with antennæ with poriferous areas and, therefore, erected a new genus for *Ophistomis ventralis* Horn, not knowing the latter was a synonym of *O. laevicollis* Bates. Boppe in his key (Genera Insectorum) has also evidently misconstrued Thomson's characterization of the genus *Ophistomis*. The genus may be separated from *Strangalina* as follows:

- | | | |
|----|---|---------------------------|
| A | Front of head short; antennæ with poriferous areas. | <i>Strangalina</i> Auriv. |
| AA | Front of head long, snout like; antennæ without poriferous areas. | <i>Ophistomis</i> Thom. |

Ophistomis laevicollis Bates, 1880, Bio-Cent. Am., p. 39.

(Plate III)

ventralis Horn, 1894, Proc. Calif. Acad. Sci., ser. 2, vol. IV, p. 401.

Length 11 to 13 mm. United States National Museum specimens of *O. ventralis* Horn are the same as cotype var. 4 of Bates *Ophistomis laevicollis*, a colour variation.

Prof. H. F. Wickham first found this species, it being included in the check-list. Horn described *ventralis* subsequently without comments and was evidently unacquainted with Bates species.

The species is black with rufous prothorax, entirely black, or with elytra partly testaceous.

Most of the specimens seen under the name *Ophistomis ventralis* have a rufous prothorax and are the same as Bates cotype "*Ophistomis laevicollis*, var. 4."

Eleven specimens, including two cotypes, are before me from Arizona, Mexico, and Guatemala.

Type locality: "Guatemala."

Genus, *BELLAMIRA* LeC.

1873, Proc. Acad. Nat. Sci., Phila., p. 328

Genotype (*LEPTURA*) *SCALARIS* Say

The genus is one with a very short front, much shorter than wide, and antennal segments without poriferous areas. The last ventral of the male is deeply excavated and greatly inflated on the sides at the apex. The last ventral of the female is feebly narrowly sulcate.

Mr. Schaeffer's (*Strangalia*) *antennata* has been placed in this genus, but undoubtedly belongs close to *delicata* LeC. and is, therefore, a *Neobellamira*.

Bellamira scalaris Say, 1827, Jour. Acad. Nat. Sci., Phila., p. 278.

(Plate VI)

coarctatus Hald., 1847, Trans. Am. Phil. Soc., vol. X, p. 59.

Length 17 to 24 mm. A large, slender species with elytra either black or brown with darker brown medium spots and apices. Antennæ rufous.

Twenty specimens are before me, from Ontario, Quebec, Northwest Territories, New Brunswick, Michigan, Ohio, Alabama, and New York. In literature, New Jersey and Florida are given.

Type locality: "Point Breeze, N.J."

Genus, NEOBELLAMIRA S. and H.

1928, Nat. Mus., Canada, Bull. No. 52, Biol. Series 14, p. 15

Genotype (STRANGALIA) DELICATA LeC.

The genus *Neobellamira* was erected by Swaine and Hopping for *Strangalia delicata* LeC., since it was apparently not congeneric with LeConte's genus *Strangalia*, now *Strangalina* Auriv. *Neobellamira* differs not only on the male characters, but on the poriferous areas of the distal segments of the antennæ which become hardly more than mere punctures or are entirely absent. In *Strangalina* these areas are strongly developed. The first tarsal joint of the hind tarsus is strongly, longitudinally sulcate or grooved, but only feebly so in a few of the *Strangalina*. Casey transferred the genus *Strangalia* of LeConte (*Strangalina* Auriv.) to *Ophistomis* Thoms., but the true *Ophistomis* of Thomson has the front before the eyes very long, whereas in *Strangalina* and *Neobellamira* the front is quite short.

KEY TO THE SPECIES

- A Lateral margins of the apical half of the elytra sinuate with apices rounded.
delicata LeC.
- AA Lateral margins of the apical half of the elytra straight with apices obliquely truncate.
sequoia R. Hop.

Neobellamira delicata LeC., 1847, Trans. Am. Ent. Soc., vol. V, p. 68.

(Plate V)

Length 9 to 15 mm. In appearance this looks much like a *Strangalina*, but has not the poriferous areas of the antennal segments and the male terminal segments are not inflated. It is fairly common at low elevations in the foothills of the Sierra Nevada mountains on wild lilac (*Ceanothus divaricata*) along mountain streams.

This species, the genotype, has the head, antennæ, prothorax, mesothorax, and metathorax black, the abdomen rufous, and the elytra rufo-testaceous with two converging black lines extending from the base to nearly the middle of the elytra, and just below the end of this line is generally a black spot reaching the elytral margin. The length of the black line varies occasionally, the antennæ are dark brown or black, and the elytral spot is sometimes missing, but otherwise the colour seems to be constant in the foothills of the Sierras. In the desert regions of Palm Springs and Anaheim, California, a wholly rufo-testaceous form has been found, with intermediates and specimens with the elytra almost entirely black which, aside from colour, cannot be separated, and are here considered only colour variations of *Neobellamira delicata* LeC.

Thirty-one specimens have been examined, all from California.

Type locality: "California."

Neobellamira sequoiae R. Hopping, 1934, Can. Ent., vol. LXVI, May, p. 115.

(Plate V)

Length, male 10 to 11 mm. Rufous, with tarsi, antennæ, except the upper surface of the scape, and elytra, except the base and part of the lateral margin, black. The head is sulcate between the eyes and short in front of the antennæ, the latter extending slightly beyond the apices of the elytra. The eyes are emarginate and moderately granulate, the prothorax is convex, rufous, with base narrowly margined with black, sparsely punctured, sides sinuate and rather strongly narrowed in front, base strongly sinuate, with basal angles rounded. The elytra are black, the base rufous, except the suture, scutellum, and centre of the basal margin black, and the sides more or less rufous basally, setigerous punctures sparse and vestiture black and stout. The lateral margins are nearly straight with apices obliquely truncate. Legs rufous with tarsi more or less black; abdomen sparsely punctured and extending beyond the tips of the elytra, last ventral very slightly excavated.

Six specimens examined, all from the Sequoia National park, California.

Type locality: "Sequoia National Park."

The late Mr. Chas. Schaeffer in 1908 (Brook. Inst. Mus. Sci. Bull., vol. 1, No. 12, page 342) described a "*Strangalia antennata*." He compares it with *Ophistomis* and *Bellamira*, but from his description it more closely falls into the genus *Neobellamira*. Two specimens, both females, were taken in the Huachuca mountains of Arizona. The types do not appear to be in the U.S. National Museum, where most of Mr. Schaeffer's collection is deposited. As I have been unable to see Mr. Schaeffer's types, it is impossible to place this species generically.

Genus, STRANGALINA Auriv.

1912, Aurivillius, Coleop. Cat., pt. 39, pp. 240-245

Ophistomis of Casey, *Strangalia* of LeConte

Col. Casey in his collection has one specimen of *Ophistomis fulvicornis* Bates upon which he probably based his interpretation of the genus *Strangalina*, or *Strangalia* as it was then called, as belonging to *Ophistomis* Thom. The antennæ of *O. fulvicornis* has poriferous areas on the distal segments of the antennæ and in general shape resembles our *Strangalina*, but is not a typical *Ophistomis* as the genotype lacks the poriferous areas. The genus *Ophistomis* has a prolonged front, much longer than wide, and, therefore, is not congeneric with *Strangalina* where the front of the head is as wide as long, not snout-like, and converging to the mandibles.

The species of *Ophistomis* are not all congeneric. *O. ochroptera* Bates from the Amazon evidently belongs to the genus *Strangalina* as it has the front of the head about as long as wide, poriferous areas of the antennæ, and the last ventral excavated.

The species here considered as *Strangalina* have poriferous areas on the distal segments of the antennæ, front of head short, and the last ventral of the male excavated, abdomen extending more or less beyond the tips of the elytra.

KEY TO THE SPECIES

- A Last ventral of male deeply excavated with margins inflated.
 - B Antennæ stout, testaceous, elytra ferruginous with pale sutural markings. A large species. (1) *virilis* LeC.
 - BB Antennæ comparatively slender, black.
 - C Elytral vestiture inconspicuous; apices of elytra obliquely truncate. A very slender species with prothorax always black. (2) *acuminata* Oliv.
 - CC Elytral vestiture conspicuous; apices of the elytra acuminate with barely perceptible angle if any on inner margin; prothorax generally with two longitudinal vittæ, but sometimes entirely black. (3) *famelica* Newm.
- AA Last ventral of male moderately excavated with margins not inflated.
 - B Elytra black, antennæ and prothorax ferruginous. (4) *bicolor* Swed.
 - BB Elytra testaceous or ferruginous, often maculate.
 - C Elytra with three black markings not reaching the suture, basal oblique. A stout species. (5) *sexnotata* Hald.
 - CC Elytra with transverse bands; comparatively slender species.
 - D Elytra with two transverse testaceous bands bordered with black. (6) *strigosa* Newm.
 - DD Elytra with three black bands. (7) *luteicornis* Fab.

- (1) *Strangalina virilis* LeC., 1873, Sm. Misc. Coll., vol. XI, 264, p. 212.
(Plate VI)

Length 13 to 15 mm. The almost uniform, ferruginous colour, stout antennæ, and black abdominal segments extending far beyond the apices of the elytra in the male, with the last ventral greatly inflated, distinguish this species from all the others. Col. Casey's second paratype under his species *texana* is *virilis* LeC. The species seems to be very rare in collections.

Sixteen specimens were examined, all from Texas.

Type locality: "Texas."

- (2) *Strangalina acuminata* Oliv., 1795, Ent., vol. IV, Paris, p. 20.
(Plate VI)

emaciata Newm., 1841, The Ent., London, vol. V, p. 68.

unicolor Hald., 1847, Trans. Am. Phil. Soc., vol. X, p. 62.

Length 7 to 11 mm. The attenuated form, black prothorax, and elytra without conspicuous vestiture serve to distinguish this species from all others. Mr. Leng says it varies to entirely black. Most of our specimens have the elytra entirely pale.

Fifteen specimens have been examined, from New Jersey, Ohio, Pennsylvania, Massachusetts, Maryland, and Ontario. In literature, New York is given.

Type locality: "l'Amérique septentrionale."

(3) *Strangalina famelica* Newm., 1841, The Ent., London, vol. V, p. 68.
(Plate VI)

confluenta Hald., 1847, Trans. Am. Phil. Soc., vol. X, p. 61.
flaviceps Hald., 1847, Trans. Am. Phil. Soc., vol. X, p. 61.
obsoleta Hald., 1847, Trans. Am. Phil. Soc., vol. X, p. 61.
solitaria Hald., 1847, Trans. Am. Phil. Soc., vol. X, p. 61.
carolina Csy., 1913, Mem. on the Coleop., vol. IV, p. 277.
ochreipennis Csy., 1913, Mem. on the Coleop., vol. IV, p. 278.

Length 11 to 13 mm. *S. famelica* Newm. is perhaps the most variable species we have in maculation, as the elytra may vary from six spots to four (the most common form) or to two apical spots only, or none at all. Five specimens from Minnesota before me have the prothorax black with only very faint apical maculation, but I cannot separate them from *famelica*.

The antennæ, however, seem to be invariably black.

Sixty-two specimens have been seen, from New Jersey, Pennsylvania, Maryland, Virginia, Illinois, Alabama, Mississippi, Kentucky, Ohio, Wisconsin, Minnesota, and South Carolina. In literature, Michigan, Iowa, New York, Georgia, and Missouri are given.

Type locality: "United States of North America."

(4) *Strangalina bicolor* Swed., 1787, Act. Holm., vol. III, p. 197.
(Plate VI)

simulans Csy., 1913, Mem. on the Coleop., vol. IV, p. 278.

Length 10 to 12 mm. We have not been able to see the original description of this species and do not know what type locality is given.

Col. Casey's type of *simulans* has been examined and does not in our opinion differ from *bicolor*. The species is unlike any other in coloration, with its rufous body and black elytra.

Thirteen specimens are before me, from Virginia, West Virginia, Maryland, Pennsylvania, Kentucky, Ohio, and Alabama. Other localities mentioned in literature are western Canada, Michigan, Georgia, and New York.

(5) *Strangalina sexnotata* Hald., 1847, Trans. Am. Phil. Soc., vol. X, p. 61.
(Plate VI)

texana Csy., 1913, Mem. on the Coleop., vol. IV, p. 276.
evanescens Csy., 1913, Mem. on the Coleop., vol. IV, p. 276.
montana Csy., 1891, Ann. N.Y. Acad. Sci., vol. VI, p. 40.

Length 9 to 12 mm. After a careful examination of Col. Casey's species, I find I cannot separate them from *sexnotata*. In any long series variation in the antennæ may be found from all black to base black and

distal segments pale. One specimen before me from Texas has an almost black prothorax with narrow basal band of the elytra as in *montana* Csy., and a female from Texas although it has the prothorax rufous as in normal *sexnotata*, has the same narrow black basal band, but not joining at the suture, and the distal two or three segments black. Females of this species often have incrassate antennæ.

This seems to be essentially a southern species. The locality given below of Massachusetts seems to be doubtful.

Sixty-four specimens have been examined, from New Mexico, Colorado, Texas, Alabama, Mississippi, Georgia, and Oklahoma. In literature, Florida and Massachusetts are given.

Type locality: No locality given.

- (6) *Strangalina strigosa* Newm., 1841, The Ent., London, vol. V, p. 69.
(Plate VI)

Length 11 to 13 mm. The broad, pale bands with black margins centrally located on the elytra distinguish this species from any other in our fauna.

Three specimens have been examined, from Florida.

Type locality: "St. John's Bluff, East Florida."

- (7) *Strangalina luteicornis* Fab., 1775, Syst. Ent., p. 197.
(Plate VI)

Length 9 to 14 mm. The pale, slender antennæ with the three elytral black bands will easily distinguish this slender species. From all the specimens examined the colours seem to be very constant. The last ventral of the male is excavated, but not inflated. The last ventral of the female is also moderately excavated.

Sixty-seven specimens have been examined, from Illinois, Ohio, Michigan, Minnesota, Massachusetts, Pennsylvania, Virginia, North Carolina, Florida, Alabama, and Texas. In literature, New York, Kentucky, Georgia, Maryland, Louisiana, and Canada are given.

Type locality: "Carolina."

Genus, EURYPTERA Serv.
1825, Encycl. Meth. Ins., vol. 10, p. 688
Genotype, EURYPTERA LATIPENNIS Serv.

In this genus the antennal segments 5 to 11 are considerably enlarged and the segments 1 to 4 covered with moderately long, stiff hairs; the pronotum is wide at the base and very narrow at the apex; elytra subparallel, often widened apically, with apices broadly subtruncate.

KEY TO THE SPECIES

- A Pronotum coarsely densely punctured; vestiture inconspicuous, a rather large, robust species. (1) *ignita* Schff.
- AA Pronotum rather finely, densely punctured; vestiture conspicuous, smaller and more slender species.
- B Elytral punctures moderately coarse and well separated, entirely black. (2) *huachucae* Schff.
- BB Elytral punctures small and dense; pronotum bicoloured, elytra black with basal half to humeri flavous, sometimes entirely black. (3) *lateralis* Oliv.

- (1) *Euryptera (Leptura) ignita* Schff., 1908, Brook. Inst. Mus. Sci. Bull., vol. 1, p. 341.

(Plate VI)

Length 13 mm. This apparently has all the characters of this genus, but in form is closer to some of the Central American species, especially *Euryptera patricia* Bates, than *lateralis* Oliv., of the United States.

The type (red) and one other specimen (orange-yellow) mentioned in Mr. Schaeffer's original description are all that I have seen. The second specimen, slightly aberrant in colour, is before me, very kindly given me by Mr. Schaeffer.

Type locality: "Huachuca Mts., Arizona."

- (2) *Euryptera huachucae* Schff., 1905, Bull. Brook. Inst. Sci., vol. 1, No. 7, p. 164.

(Plate VI)

Length 7 to 10 mm. The species is generally entirely black, but Mr. Schaeffer speaks of some of the males having the underside of the head flavous. The sparse punctures of the elytra will instantly separate it from *E. lateralis* Oliv.

Seven specimens are before me, from Cochise county, Arizona. Texas is also mentioned in literature.

Type locality: "Millers Canon, Huachuca Mts., Arizona."

- (3) *Euryptera lateralis* Oliv., 1795, Ent., vol. 4, Gen. 73, p. 22.

(Plate VI)

distans Genn., 1824, Insect. species noral, Halle, vol. XXIV, p. 524.

cincta Hald., 1847, Trans. Am. Phil. Soc. (2), vol. X, p. 63.

obsoleta Hald., 1847, Trans. Am. Phil. Soc. (2), vol. X, p. 63.

lateralis Hald., 1847, Trans. Am. Phil. Soc. (2), vol. X, p. 63.

flavatra Blatch., 1914, Can. Ent., vol. XLVI, p. 92.

subintegra Csy., 1924, Mem. on the Coleop., vol. XI, p. 285.

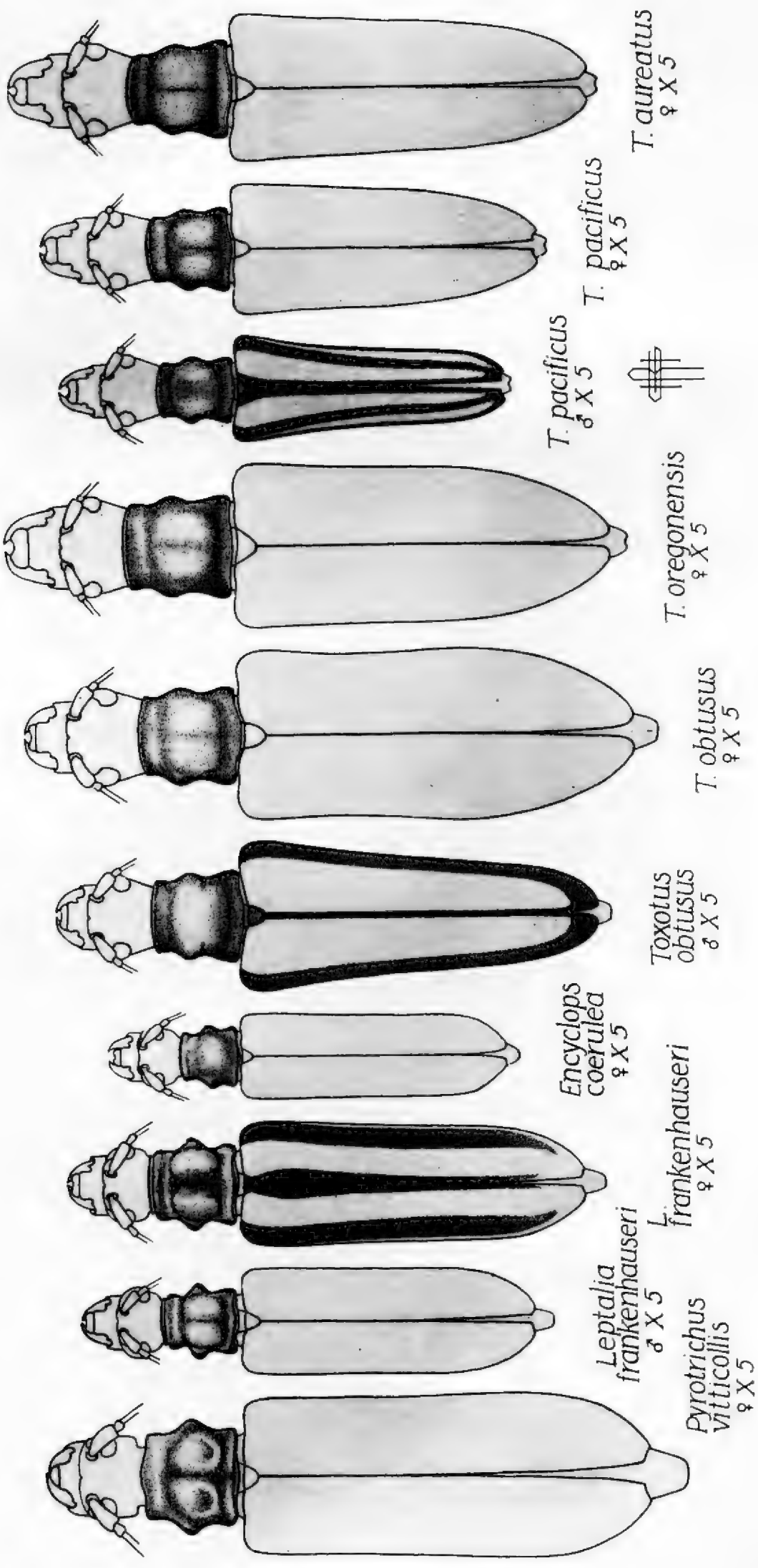
Length 9 to 11 mm. The dense, close, piliferous punctures of the elytra are typical and place all these colour forms as one species.

E. subintegra Csy. is typical *lateralis* Oliv. (one specimen) a female. There is another specimen in the Casey collection with the basal two-thirds of the elytra flavous, which is an extreme colour form of what Prof. Blatchley called *flavatra*.

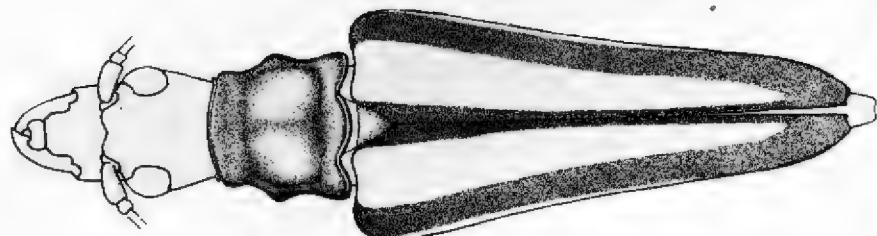
Twenty-one specimens have been seen, from Alabama, Mississippi, and Florida. In literature, Massachusetts and Mexico are given.

Type locality: "l'Amérique septentrionale."¹

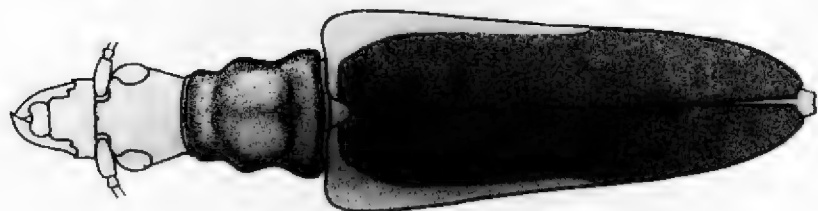
¹ Through an oversight Mr. J. O. Martin's *Euryptera cruentata* has not been included. I have not seen the unique type. It was described in the Pan Pacific Entomologist, 1930, vol. VII, Oct., No. 2, p. 70.



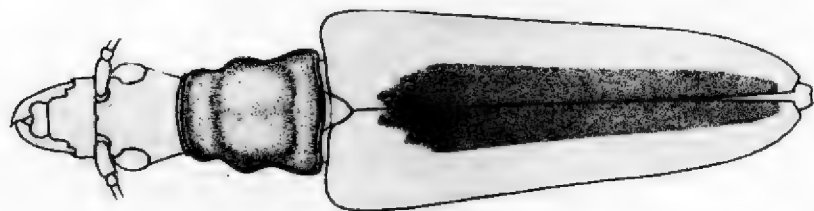




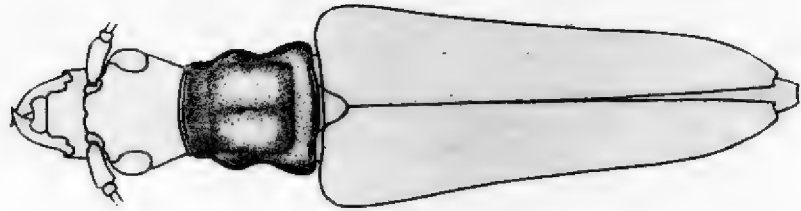
Toxotus flavolineatus
♂ X 3.5



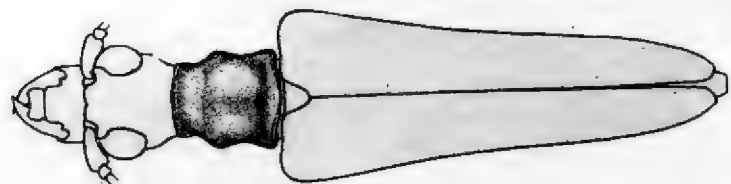
T. lateralis
♀ X 4



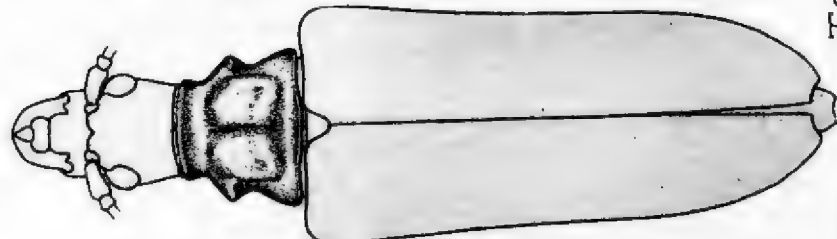
T. vestitus
♀ X 4



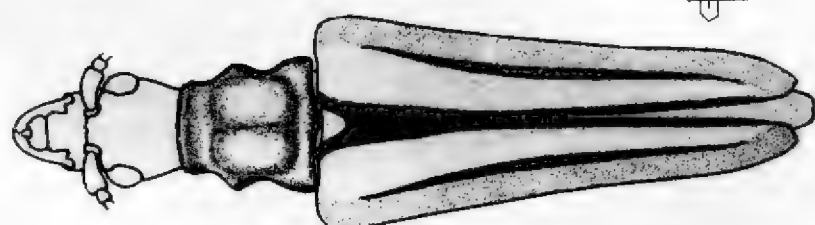
T. vestitus
♂ X 4



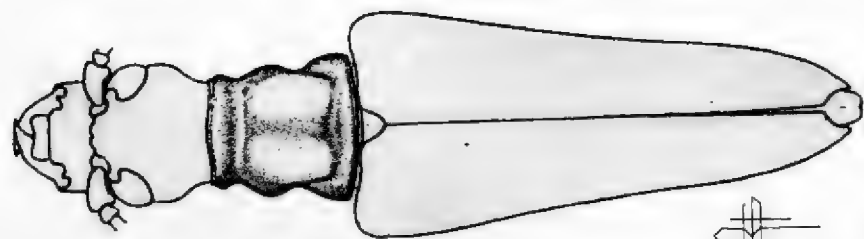
T. cinnamopterus
♂ X 5



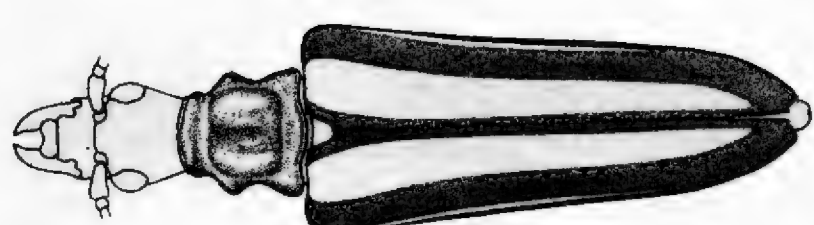
T. schaumii
♀ X 2.5



T. trivittatus
♂ X 4

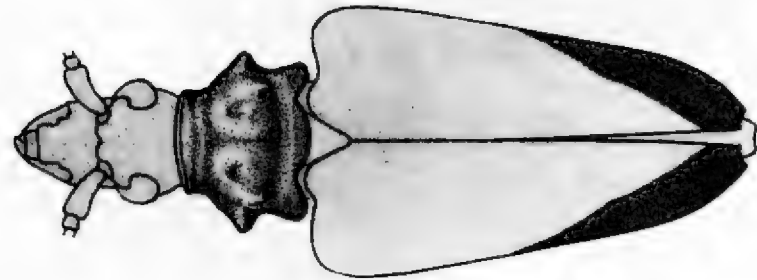


T. cylindricollis
♀ X 3.5

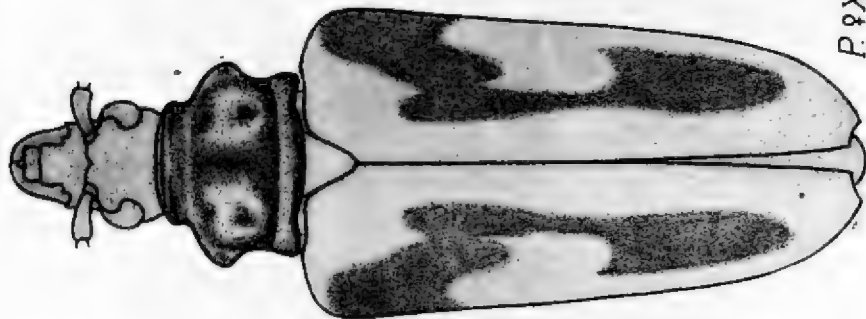


T. vittiger
♀ X 3.5

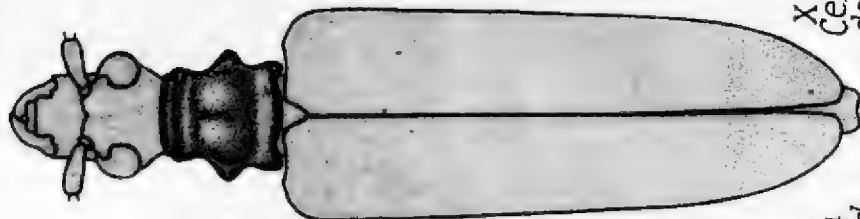
PLATE III



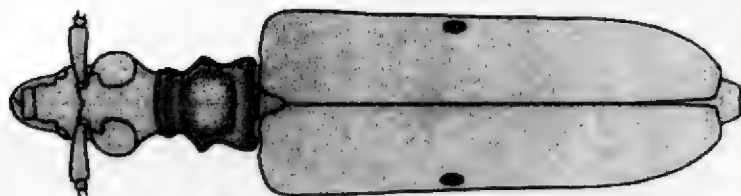
Pachyta armata x 4



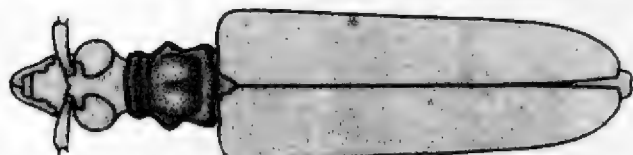
P. lamed x 4



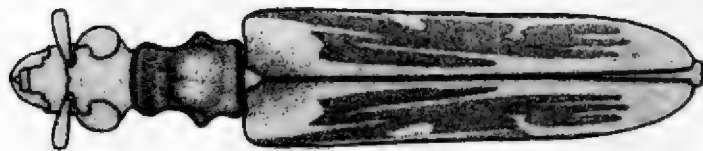
Centrodera decolorata x 3



C. spurca x 3



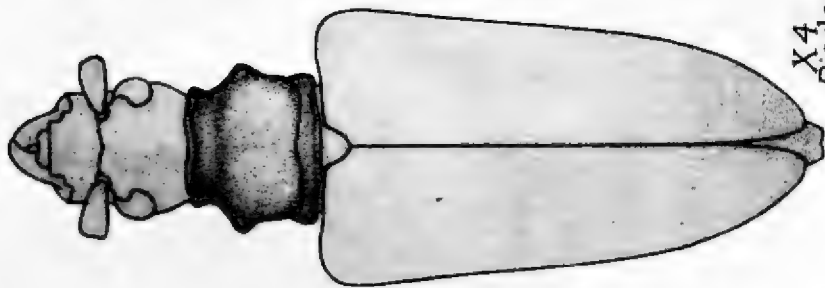
C. nevadica x 3



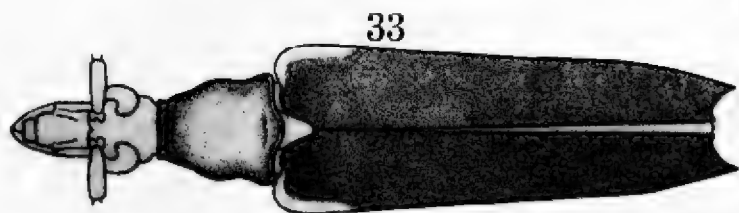
C. picta x 5



Xylosteus ornatus x 5

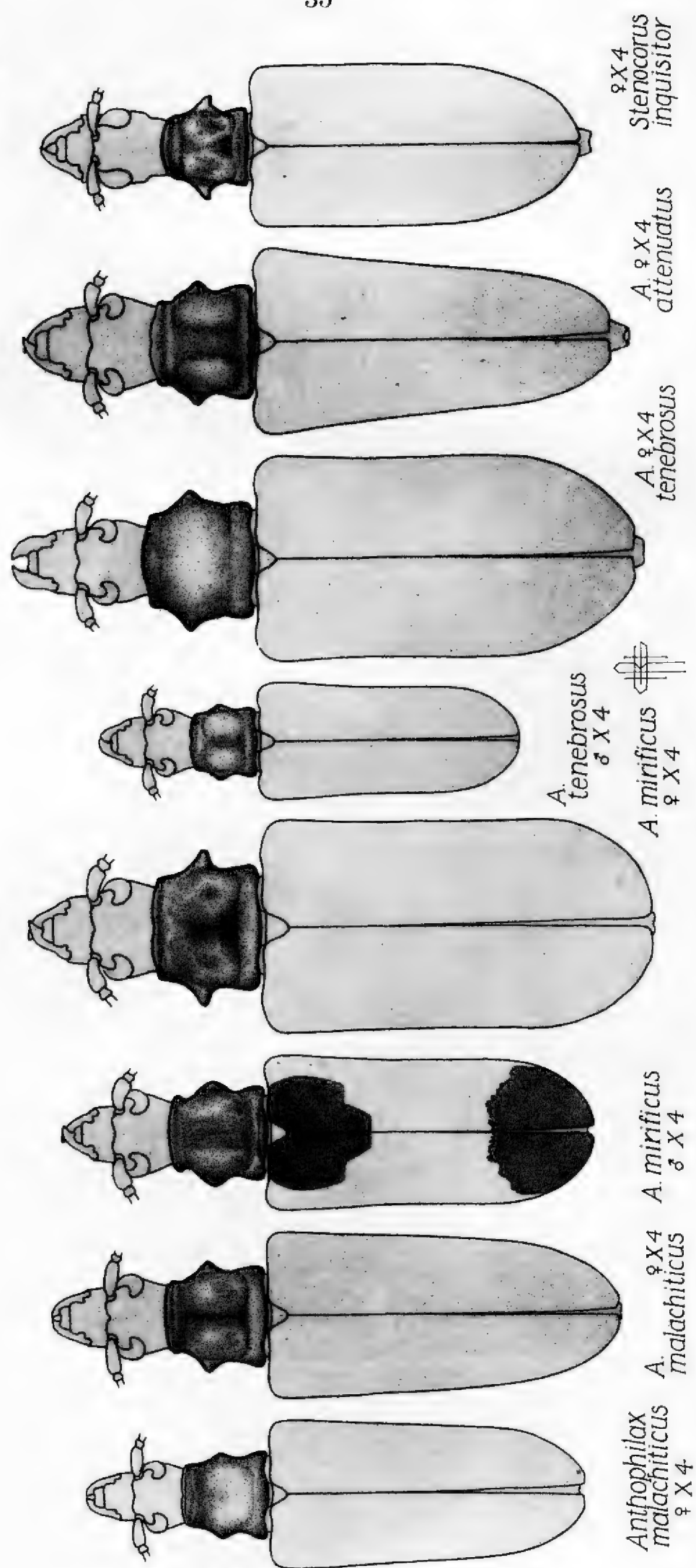


Plodes coriacea x 4

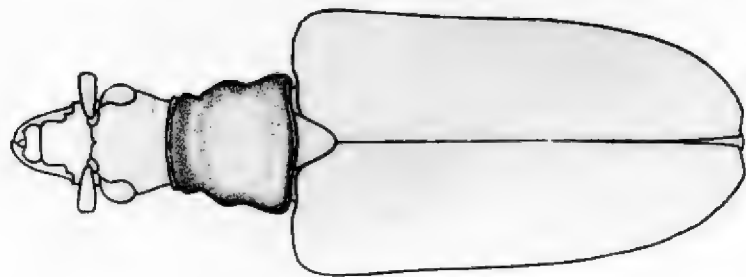


Ophistomis laevicollis x 5

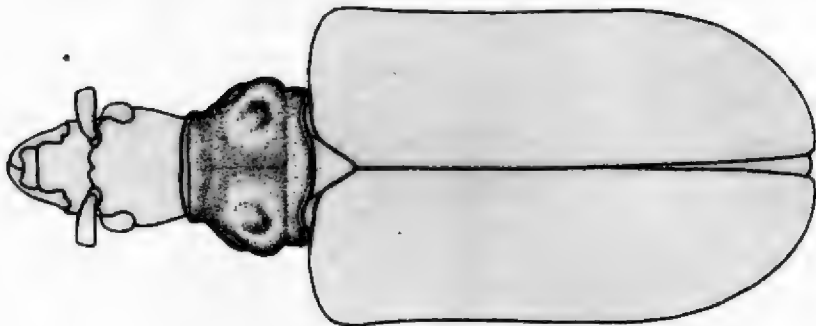




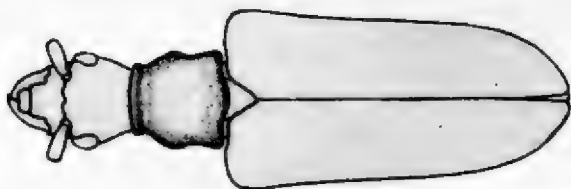




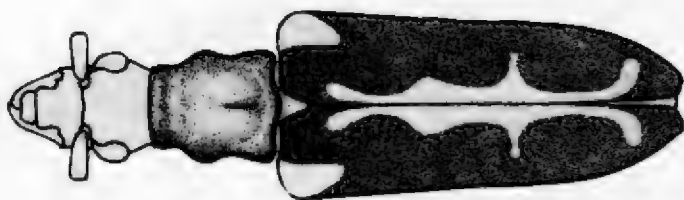
Gaurotes cyanipennis
X 5



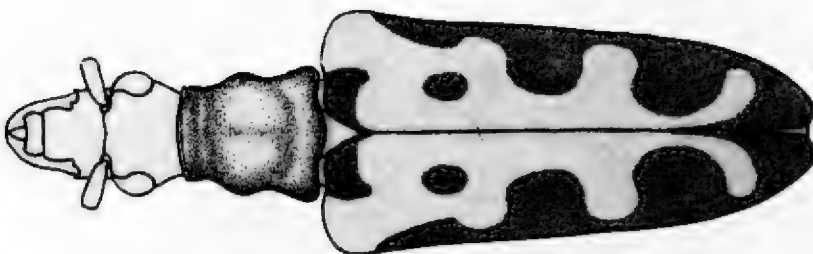
G. cressoni
X 4



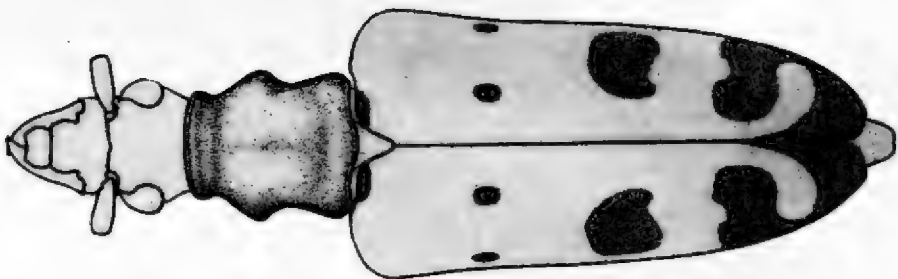
G. abdominalis
X 5



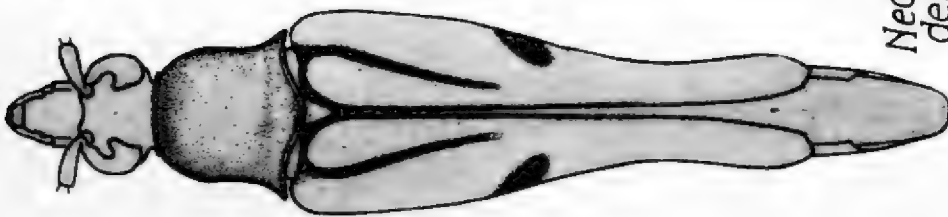
Evodinus vancouveri
♂ X 5



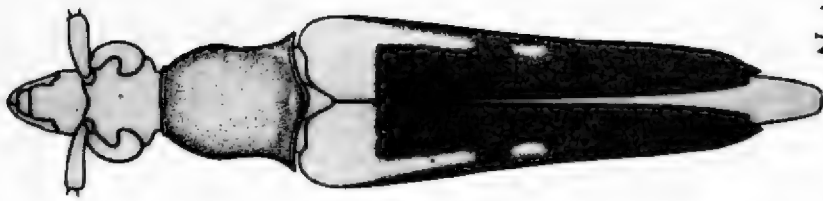
E. vancouveri
♀ X 5



E. monticola
♀ X 5

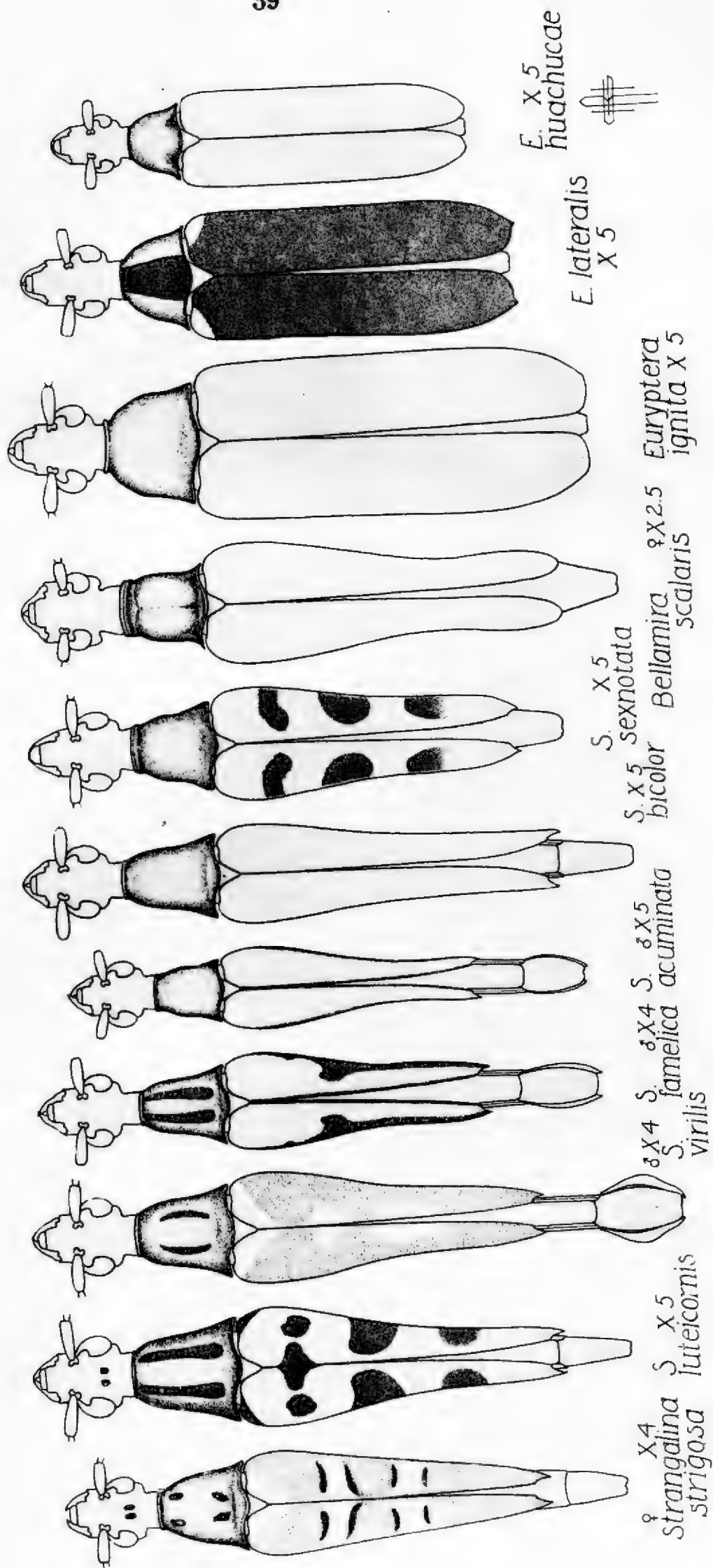


Neobellamira delicata X 5



N. x 5
sequoiae





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MINES AND GEOLOGY BRANCH

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REPORT ON THE GEOLOGY OF CANADA

BY

JOHN W. HEDGECOCK, F.R.S.C.

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